

REMARKS

Reconsideration of the present application is respectfully requested. Claims 1-30 and 33-39 have been amended. New claim 40 has been added. Support for the amendments to claims 1-30 and 33-39 and new claim 40 can be found in at least Figure 3B, Figure 4B, Figure 5B, Figures 7-8, page 8, line 24 to page 10, line 2; page 12, line 1 to page 15, line 30 of the application as originally filed. Claims 1-30 and 33-40 are currently pending.

Claim 7 stands objected to because it is asserted that in claim 7, line 2, "said antenna device" should be "said ground plane". Applicant has amended claim 7 to change "said antenna device" to "said antenna system." Applicant respectfully requests that the objection to claim 7 be withdrawn.

Claims 1-3 and 9-12 stand rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,717,494 to Kikuchi et al. ("Kikuchi"). Independent claim 1 as amended is directed to an antenna system of the type used in a handheld electronic device comprising an antenna element and a ground plane. Independent claim 1 further recites that the ground plane comprises at least two conducting surfaces each having a plurality of sides defined by at least one edge; at least one conducting strip connecting said at least two conducting surfaces for allowing current to flow between said at least two conducting surfaces; and said strip being narrower than the width of any of said at least two conducting surfaces, wherein the ground plane includes at least one gap having an open end between the at least two conducting surfaces, wherein each of the at least two conducting surfaces are of a shape with at least four sides, and wherein the ground-plane contributes to the radiation performance of the antenna device system.

The Office Action asserts that Kikuchi teaches "in Figure 14 a ground-plane for an antenna device characterized in that the ground-plane includes at least two conducting surfaces, the two conducting surfaces being connected by at least one conducting strip which allows current to flow from one conducting surface to another, the strip being narrower than the width of any of the two conducting surface (figure 14 and col. 13, lines 30-40)." Figure 14 and column 13, lines 30-40 of Kikuchi describes a printed circuit board 48 having a ground pattern 51 composed of an H shaped pattern formed on a back surface 50B of an insulating layer 49, and a frame-shaped electric conductor 52 provided on a face surface 50A of the insulating layer 49.

Kikuchi further describes that the ground pattern 51 and the frame-shaped additional electric conductor 52 are electrically connected through a via plug 53 formed on the insulating layer 49. Applicant respectfully submits that there is no teaching or suggestion in Kikuchi of an antenna system having an antenna element and a ground plane. The ground pattern 51 of Kikuchi is not a ground plane for an antenna system comprised of an antenna element and a ground plane. In fact, the printed-circuit board of Kikuchi is constructed so as to reduce the occurrence of electromagnetic interference (EMI) by suppressing radiated emissions of electrical conductors on the printed-circuit board. There is no teaching or suggestion that the ground pattern 51 of Kikuchi is suitable for use in an antenna system having an antenna element in which radiation of electromagnetic energy is desirable. For at least the foregoing reason, Applicant respectfully submits that independent claim 1 as amended distinguishes over Kikuchi and requests that the 35 U.S.C. 102(e) rejection of independent claim 1 be withdrawn.

Claims 2-3 and 9-12 are dependent upon and include the features of independent claim 1. As discussed with respect to independent claim 1, Kikuchi fails to teach or suggest the aforementioned distinguishing features of independent claim 1. For at least the reasons as discussed with respect to independent claim 1, Applicant respectfully submits that claims 2-3 and 9-12 also distinguish over Kikuchi and requests that the 35 U.S.C. 102(e) rejections of claims 2-3 and 9-12 be withdrawn.

Claims 1, 2, 7-11, 25-30, and 33-39 stand rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,140,975 to Cohen. Cohen describes a vertical antenna system which includes vertically space-apart fractal conductive and passive elements, and one or more fractal ground elements. Figure 11B of Cohen describes a fractal antenna 810 which lies in the same plane as a ground plane 800, but is separated therefrom by an insulating region in which a passive or parasitic element 800' is disposed within. The ground plane 800 of Cohen is described as being formed of a conductive sheet. The conducting surfaces of the ground plane of Cohen are formed such that any "gap" formed by the conducting surfaces of the ground plane have closed ends. Applicant respectfully submits that Cohen fails to teach or suggest at least the feature of independent claim 1 as amended of "wherein the ground plane includes at least one gap having an open end between the at least two conducting surfaces." For at least the foregoing

reasons, Applicant respectfully submits that independent claim 1 as amended distinguishes over Cohen and requests that the 35 U.S.C. 102(b) rejection of independent claim 1 be withdrawn.

Claims 2, 7-11, 25-30, and 33-39 are dependent upon and include the features of independent claim 1. As discussed with respect to independent claim 1, Cohen fails to teach or suggest the aforementioned distinguishing feature of independent claim 1. For at least the reasons as discussed with respect to independent claim 1, Applicant respectfully submits that claims 2, 7-11, 25-30, and 33-39 also distinguish over Cohen and requests that the 35 U.S.C. 102(b) rejections of claims 2, 7-11, 25-30, and 33-39 be withdrawn.

Claims 1-3 stand rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,359, 589 to Bae ("Bae"). Bae is directed to a microstrip antenna having a ground patch on which a feed line is located, and a dielectric laminated on the ground patch. Figure 11 of Bae describes a ground patch 40 which includes a right triangle ground plate 41 having an area extending from a core conductor of a feed line 30 to both corners of a dielectric 50, and a connecting plate 42 extending from the core conductor of the feed line 30 towards a left ground plate 43 covering the under surface of the dielectric 50. As described above, Bae describes the ground plate 41 of Bae as having a triangular area. Applicant respectfully submits that Bae does not teach or suggest a ground plane having at least two conducting surfaces "wherein each of the at least two conducting surfaces are of a shape with at least four sides" as found in independent claim 1 as amended. For at least the foregoing reasons, Applicant respectfully submits that independent claim 1 distinguishes over Bae and requests that the 35 U.S.C. 102(b) rejection of independent claim 1 be withdrawn.

Claims 2-3 are dependent upon and include the features of independent claim 1. As discussed with respect to independent claim 1, Bae fails to teach or suggest the aforementioned distinguishing feature of independent claim 1. For at least the reasons as discussed with respect to independent claim 1, Applicant respectfully submits that claims 2-3 also distinguish over Bae and requests that the 35 U.S.C. 102(b) rejections of claims 2-3 be withdrawn.

Claims 4-6 and 13-24 stand objected to as being dependent upon a rejected base claim, but are indicated by the Examiner as allowable if rewritten in independent form including

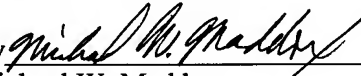
all of the limitations of the base claims and any intervening claims. Applicant wishes to thank the Examiner for the indication of allowable subject matter.

New claim 40 is dependent upon and includes the features of independent claim 1. For at least the reasons discussed with respect to independent claim 1, Applicant respectfully submits that claim 40 also distinguishes over the cited references.

In view of the above amendment, Applicant believes the pending application is in condition for allowance.

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Respectfully submitted,

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